

Response to FERC AIR WQ-5

ADDITIONAL GEOMORPHOLOGY INFORMATION

Klamath Hydroelectric Project
(FERC Project No. 2082)

PacifiCorp
Portland, Oregon

May 2005

Revised Sediment Budget Spreadsheets

FERC AIR WQ-5 (Geomorphology Information) requests that PacifiCorp revise the sediment budget data presented in Table 6.7-19 and Figures 6.7-59 through 6.7-63 of the Water Resources Final Technical Report (PacifiCorp 2004) so that both include every “node” or “process” within the sediment budget, and each node or process contains all the input information necessary to allow for a full examination of the budget’s components and variables.

Spreadsheet of Sediment Inputs, Transport Capacities, and Average Annual Deficits or Surpluses

The Excel spreadsheet titled “*MasterSedimentBudget051105.xls*” contained on this CD shows all sediment inputs, transport capacities, and average annual deficits or surpluses for each node and Project study reach. Nodes in this spreadsheet are defined as any input, in-channel project structure, or reach boundary. Although inputs are shown at each node, the original sediment budget was developed for assessment at the reach scale and was based on an average transport capacity for each Project study reach. As a result, it is not appropriate to evaluate the average annual sediment deficit or surplus at each node.

This sediment budget includes the Klamath River from the Link River Project study reach to Seiad Valley. The watershed areas, sediment yields, and classes of sediment yield are included for each cell. Connectivity factors are explicitly stated and described. Theoretical average annual sediment transport capacity is presented for each reach and the resulting sediment deficit or surplus is stated. Descriptive notes were added to the spreadsheet to clarify the methods used to estimate the sediment inputs for each Project study reach. This spreadsheet replaces Table 6.7-19 in the Water Resources Final Technical Report (PacifiCorp 2004).

The sediment flux resulting from floodplain and in-channel storage was not factored into each cell of the sediment budget. This decision was based on our analysis of historical aerial photography. The historical photographs did not show significant changes in bars or mid-channel islands, suggesting that the sediment flux between these features has remained relatively stable over the length of each Project study reach. Therefore, floodplain and in-channel storage was determined not to be a significant sediment source or sink and both were omitted from this sediment budget. A more detailed analysis of the flux on in-channel and floodplain sediment storage could be undertaken using rectified series of aerial

photographs in GIS to make detailed measurements of in-channel and floodplain features. However, this was not deemed necessary by the Geomorphology Subgroup (GSG) during the development of the sediment budget.

Spreadsheet of Average Annual Sediment Transport Capacity

The Excel spreadsheet titled "*AvgAnnualTransportCapacity.xls*" contained on this CD lists the average annual sediment transport capacity for each of the study sites (in the tab in this spreadsheet called "*raw_transport_daily*"). This spreadsheet also includes hydraulic data used to derive the sediment transport capacity on tabs named for each reach.

Spreadsheet of Tributary Sediment Yields

The Excel spreadsheet titled "*TribSedYield.xls*" contained on this CD summarizes the sediment yields from the tributary delta surveys (see Appendix 6B in the Water Resources Final Technical Report (PacifiCorp 2004)).

Reference

PacifiCorp. 2004. Water Resources Final Technical Report. Klamath Hydroelectric Project, FERC No. 2082. PacifiCorp, Portland, Oregon.